INDEX TO VOLUME LXI.

TP700
.A5

July 1 to December 31, 1894.

A

*Abney, Capt. W. de W., Photometry..... 296, 331, 363
*Acetylene and Calcium Carbide, by Francis Wyatt, Ph.D.... 903
Achievements and Aims of Physical Chemistry, by J. E. Trevor..... 224
Action of Light on Dyes..... 330
Address of A. Crova before the Association of French Gas Engineers..... 2
Address of Col. Sadler, President North of England Gas Managers' Association..... 655
Address of President W. H. Pearson, 22d Annual Meeting American Gas Light Association..... 578
*Allen's Apparatus for Manufacture of Gas..... 939
American Gas Light Association, Abstract of Proceedings of 22d Annual Meeting of..... 616, 620, 683
Analysis of Electrolyzed Water Pipes..... 797
*Andrew Gas Engines..... 221
Aniline, Influence of Temperature on the Specific Heat of.... 801
*Apparatus for Gas Manufacture, Mayer's..... 547
*Apparatus for Separating Gas from Liquid Bye-Products, Dixon's..... 116
*Apparatus for the Manufacture of Water Gas, Guldlin's Improved..... 762
*Apparatus for Quick Determination of Gases, Hempel's..... 761
Application of Coal Tar for Making Gas, by C. S. Ellery..... 114
Applications of Chemical Technology to Gas Manufacture, by G. H. Harper..... 92
*Appliances for Prevention of Smoke, by W. P. Sicard... 189 219
*Arc Lamps, Distribution of Light from, by Rankin Kennedy. 874
Arc Light Stations, the Steam Engine in..... 117
Argentine, Gas Manager in..... 800
*Armstrong's Improved Plan of Smokeless Combustion of Fuel 621
Arnold, B. J., Cost of Producing Electrical Energy..... 438
Ashworth, Daniel, Losses in Boiler Practice and Some of their Causes..... 942
*Atmospheric Burners, Improvement in the Construction of, by C. R. Voisey, M. D..... 110
*Automatic Gas Meter, Brownhill's..... 328

B

*Bad Flames, Light Wasted in, by N. W. Gifford..... 794
*Bates' Smokeless Boiler Setting..... 221
Beehive and Bye-Product Coke Ovens..... 550
Belton, W., Sketch of a Process Affecting Gas Purification and Sulphate Producing..... 764
Benches, Regenerative, by A. E. Forstall..... 614
Benzine in Illuminating Gas, Determination of..... 515
Blauvelt, W. H., Prevention of Smoke in Boiler Firing by the Use of Producer Gas..... 112
Boiler Firing, Use of Producer Gas in, for the Prevention of Smoke, by W. H. Blauvelt..... 112
Boiler Practice, Losses in, and Some of their Causes, by Daniel Ashworth..... 942
Boiler Room, Economy in, by J. C. McMynn..... 261
*Boiler Setting, the Bates' Smokeless..... 221
*Boilers and Engines in a Power Plant, Proper Connection of, by T. F. Sheffler..... 871
Boilers, Pitting of..... 636
*Boilers, Water Tube, Circulation in..... 835
*Bouvier's Siphon Test Box for Gas Mains..... 585
*Brownhill's Automatic Gas Meter..... 328
Building Stone..... 115
Burner, Incandescent, Lighting by..... 369
*Burners, Atmospheric, Improvement in the Construction of, by C. R. Voisey, M. D..... 110
*Bye-Products, Liquid, Dixon's Apparatus for Separating Gas from..... 116
Bye-Products of Coke Manufacture, Recovery of..... 405

C

*Calcium Carbide and Acetylene, by Francis Wyatt, Ph.D... 903
Calorimeters, Testing the Accuracy of Small Throttling..... 838
Candle Material, Melting points and Composition of, by W. E. Garrigues..... 905
Capital and Revenue Accounts of London Electric Lighting Companies..... 182
Carnegie Company, an English Contemporary on..... 150
Carriage for Common Roads, Motor-Driven..... 368
Carter. Prof. O. C. S., Drilling for Oil and Natural Gas in the Vicinity of Philadelphia..... 406
Cathode Rays..... 941
Cement, Portland..... 183
Central Heat of the Earth, to Tap the..... 50
Central Stations, Steam Engine in, by E. A. Merrill..... 119
*Chadwick, J., Experiences with Some Leaky Gasholder Tanks 390
Chemical Notes, Two Interesting, by Jos. W. Richards..... 188
Chemical Technology, Applications of, to Gas Manufacture, by G. H. Harper..... 692
Chemistry, Physical, Achievements and Aims of, by J. E. Trevor..... 224
Chester, W. B., Heating of Greenhouses and Conservatories by Coal Gas..... 868
Chew, W., Gas and Electricity Supply of Blackpool..... 184
Cleminshaw, T. S., Gaseous Fuel in the Retort House..... 148
Coal Gas Plant, Small Experimental Plant as an Aid to the Management of, by P. Young..... 727
Coal in Peru..... 914
Coal Mining in Illinois..... 223
Coal Mining in owa, C st of, by G. A. Davis..... 550
Coal Tar Application of, for Making Gas, by C. S. Ellery..... 114
Coal Versus Petroleum..... 85
Coin Meters, Notes on, by Frank Livesey..... 794
Coke Iron, Malleable Castings from..... 799
Coke Making in the South, by Richard Thomas..... 46
Coke Manufacture, Bye-Products of..... 550
Coke Manufacture, Recovery of Bye-Products in..... 405
Coke Ovens in the United States..... 117
Comments on Mr. Newbigging's Paper on "Illuminating Power and Illuminating Effect," by J. P Gill.... 218, 732, 804
Concrete Construction and its Practical Application, by E. L. Ransome..... 908
*Condenser and Drip for Gas Service Pipe, Gindele's..... 45
Conservatories and Greenhouses Heated by Coal Gas, by W. R. Chester..... 868
Construction and Equipment of a Mod rn Power Station..... 301
Copying Sculpture by Electricity..... 191
Corrosion of Iron Pipes by Electric Railway Return Currents. 263
*Crehore, Dr. A. C., Reliable Method of Recording Variable Current Curves..... 82
Crova, A., Address of, before the French Association of Gas Engineers..... 2
*Crystallization of Iron and Steel..... 509
Culvert, Electric, Gas in, by S. W. Durkin..... 911
Currents, High Potential, Protection of Buildings Against.... 13

CORRESPONDENCE—

Association Meetings and Advertising..... 650
Mr. Egner Asserts His Position..... 769
Something About the Proposed Opposition for St. Paul, Minn..... 442
Special English Correspondence, by Norton H. Humphry's..... 9, 153, 298, 478, 623, 802, 946

D

Davis, G. A., Cost of Coal Mining in Iowa..... 550
Design and Construction of Gas Works for Hot Climates, by L. T. Wright..... 836
Determination of Benzine in Illuminating Gas..... 515
Determination of Melting Points and Composition of Some Candle Material, by W. E. Garrigues..... 905
Development of the Gas Engine..... 543
Dexter, F. G., Outdoor Lighting by the Incandescent Gas Burner..... 830
*Dexter, F. G., Steam Applied as an Aid to the Revivification of Oxide *in Situ*..... 259
Diffused Reflection, Photometry of, by E. Lommel..... 661
Diffusion of Light from Dull Surfaces..... 798
Direct Current Lighting at High Pressures..... 515
Direct Reading Form of Platinum Thermometer..... 473
Distribution of Gas, by J. P. Gill..... 38, 75
*Distribution of Light from Arc Lamps, by Rankin Kennedy 874
*Dixon's Apparatus for Separating Gas from Liquid Bye-Products..... 116
*Drawing Office Methods, by S. E. McNair..... 152
Durkin, S. W., How an Electric Current Introduced Gas into an Electric Culvert..... 911
Dyeing Leather..... 122
Dyes, Action of Light on..... 330
Dynamo Currents for Operating Fire Alarm Systems, by B. S. Flanders..... 553

E

*Economical Method of Lining and Relining Generators..... 656
Economy in the Boiler Room, by J. C. McMynn..... 261
Education, Technical..... 728
Effect of Elevation on Pressure, by Fred. N. Morton..... 218
Electrical E ergy, Cost of Producing, by B. J. Arnold..... 438
Electrical Engineering, "A Living Price" in..... 190
Electrical Fads..... 837
Electricity and Gas Supply of Blackpool, by W. Chew..... 184
Electricity, Fire Risks of..... 474
Electricity, Generation of, by Windmills, by Lieut. I. N. Lewis..... 833
Electricity in Mining..... 227, 335
Electricity, Regulations for the Supply of Compared with those for the Supply of Gas, by Norton H. Humphreys... 507
Electricity Water and Gas, Power Distribution by..... 8
*Electric Lamp, Incandescent, by Wm. E. McKay..... 435
Electric Light Companies of London, Capital and Revenue Accounts of..... 182
Electric Lighting and the Competition of the Welsbach Gas Burner, by E. M. Highlands..... 546
Electric Lighting, Municipal..... 587
Electric Lighting Versus Gas, by E. M. Harris..... 74, 182, 290
Electric Machine for the Copying of Sculpture..... 191
Electric Power in Belgian Works, by D. Selby-Bigge..... 402
Electric Problem with Reference to Fires and Firemen..... 875
Electric Railway Return Currents, Corrosion of Iron Pipes by 263
Electric Shocks, Resuscitation After..... 121
Electric Wires, Fire from Contact with..... 585
Electrolysis, Prevention of..... 404
Electrolyzed Water Pipes, Analysis of..... 797
Elevation and its Effect on Gas Pressure, by J. P. Gill.... 254, 290
Ellery, C. S., Application of Coal Tar for Making Gas..... 114
Engineers' Specifications, Some Suggestions for..... 875
*Engines and Boilers in a Power Plant, Proper Connection of, by T. F. Scheffler..... 871
Engines, Governed, Hunting of..... 334
Engines, New, Precautions in First Starting..... 301
English Contemporary on the Carnegie Company..... 150
"Equilibrium, an Interesting Application of," by an "Old Contributor."..... 794
*Experiences with the Welsbach Incandescent Gas Lamp, by W. S. Rathell..... 732
Experimental Plant as an Aid to the Management of a Coal Gas Works, by P. Young..... 727
Experiments with Superheated Steam..... 659
Explosions of Gas Near Electric Mains..... 767

EDITORIALS—

American-Irish Gas Man..... 326
Annual Meeting of the Society of Gas Lighting..... 901
Another Decision by the Massachusetts Board of Gas and Electric Light Commissioners..... 901
Beginning of the End in the Brooklyn Gas War..... 362
Calcium Carbide, or "Loaf Sugar Enrichers"..... 502
City Council of St. Paul, Minn., and Col. Pugh's Opposition Project..... 434
Collapse of the Opposition at Montreal..... 506
Death of Mr. Amos. C. Barstow..... 398
Death of Mr. James W. Smith..... 798
Death of Mr. Horatio S. Young..... 614
Death of Mr. Samuel G. Stiness..... 685
Death of Mr. Thomas G. Gilbert..... 757
Decision in the Haverhill (Mass.) Gas Rate Contention.. 73
Electricity and the Auer Welsbach Burner..... 865
Ending at Washington..... 613
End of the Year..... 937
First Convention of the Superintendents of the American Gas Company..... 938
Gas War in Montreal..... 289
Herr von Oechelhauser on the Gas Industry in the United States..... 258
Humphrys & Glasgow Ready for Business..... 181
Hurried Notes from the Washington Convention..... 577
Latest from Brooklyn..... 793
London Discusses High and Low Power Gas..... 145
Memorial Action of the Guild of Gas Managers in Respect to the Late Mr. S. G. Stiness..... 865
Minneapolis (Minn.) Arbitration..... 217
Minneapolis (Minn.) Gas Rates Seem to be Settled..... 289
Minneapolis (Minn.) Gas Company Refuses to Accept the $1.30 Gas Rate..... 253
Minute Passed by the Society of Gas Lighting to the Memory of the Late Mr. S. G. Stiness..... 866
Mr. John West on Water Gas for Enriching Purposes.... 38
New York and East River Gas Company..... 145
Obituary, Mr. S. G. Stiness..... 721
Obituary, Mr. James W. Smith..... 829
Obituary, Mr. George H. Wells..... 829
Outlook for Gas Prices in New York, Brooklyn and Jersey City..... 1
Outlook for the Washington Meeting..... 434, 470, 506, 542
Palaz's Treatise on Industrial Photometry..... 902
Papers by Messrs. Egner & Evans, American Gas Light Association Meeting..... 649
"Pray's Steam Tables and Engine Constants"..... 434
Prepayment Meter..... 470
Provision of the Proposed New Constitution for the State of New York..... 542
Queer Change Wrought by Time..... 757
Sage, of Pawtucket, Receives his Friends..... 73
Secretary McKeige on the Standard Company's Relation to New York City Rate..... 37
Signs of Returning Prosperity..... 181
Situation at Montreal, Canada..... 325
Some Odd Features of the Washington Meeting..... 614
State of Trade..... 398, 649
Synopsis of the Proceedings of the Washington Meeting.. 686
Trade Outlook..... 38
Washington Meeting of the American Association..... 398
Worcester (Mass.) Hearing..... 109
Yes, the Same Old Future..... 758

F

*Facts About Gas Radiators..... 476
Fiber Tubes..... 13
Fire Alarm Systems, Dynamo Currents for Operating, by B. S. Flanders..... 553
Fireclay Gas Retorts, Manufacture of, and Advantages of having Standard Sizes, by P. Hurll..... 326
Fire from Contact with Electric Wir s..... 585

INDEX TO VOLUME LXI.

TP700
.A5

July 1 to December 31, 1894.

A

*Abney, Capt. W. de W., Photometry..... 296, 331, 363
*Acetylene and Calcium Carbide, by Francis Wyatt, Ph.D.... 903
Achievements and Aims of Physical Chemistry, by J. E. Trevor..... 224
Action of Light on Dyes..... 330
Address of A. Crova before the Association of French Gas Engineers..... 2
Address of Col. Sadler, President North of England Gas Managers' Association..... 655
Address of President W. H. Pearson, 22d Annual Meeting American Gas Light Association..... 578
*Allen's Apparatus for Manufacture of Gas..... 939
American Gas Light Association, Abstract of Proceedings of 22d Annual Meeting of..... 616, 620, 683
Analysis of Electrolyzed Water Pipes..... 797
*Andrew Gas Engines..... 221
Aniline, Influence of Temperature on the Specific Heat of.... 801
*Apparatus for Gas Manufacture, Mayer's..... 547
*Apparatus for Separating Gas from Liquid Bye-Products, Dixon's..... 116
*Apparatus for the Manufacture of Water Gas, Guldlin's Improved..... 762
*Apparatus for Quick Determination of Gases, Hempel's..... 761
Application of Coal Tar for Making Gas, by C. S. Ellery..... 114
Applications of Chemical Technology to Gas Manufacture, by G. H. Harper..... 92
*Appliances for Prevention of Smoke, by W. P. Sicard... 189 219
*Arc Lamps, Distribution of Light from, by Rankin Kennedy. 874
Arc Light Stations, the Steam Engine in..... 117
Argentine, Gas Manager in..... 800
*Armstrong's Improved Plan of Smokeless Combustion of Fuel 621
Arnold, B. J., Cost of Producing Electrical Energy..... 438
Ashworth, Daniel, Losses in Boiler Practice and Some of their Causes..... 942
*Atmospheric Burners, Improvement in the Construction of, by C. R. Voisey, M. D..... 110
*Automatic Gas Meter, Brownhill's..... 328

B

*Bad Flames, Light Wasted in, by N. W. Gifford..... 794
*Bates' Smokeless Boiler Setting..... 221
Beehive and Bye-Product Coke Ovens..... 550
Belton, W., Sketch of a Process Affecting Gas Purification and Sulphate Producing..... 764
Benches, Regenerative, by A. E. Forstall..... 614
Benzine in Illuminating Gas, Determination of..... 515
Blauvelt, W. H., Prevention of Smoke in Boiler Firing by the Use of Producer Gas..... 112
Boiler Firing, Use of Producer Gas in, for the Prevention of Smoke, by W. H. Blauvelt..... 112
Boiler Practice, Losses in, and Some of their Causes, by Daniel Ashworth..... 942
Boiler Room, Economy in, by J. C. McMynn..... 261
*Boiler Setting, the Bates' Smokeless..... 221
*Boilers and Engines in a Power Plant, Proper Connection of, by T. F. Sheffler..... 871
Boilers, Pitting of..... 636
*Boilers, Water Tube, Circulation in..... 835
*Bouvier's Siphon Test Box for Gas Mains..... 585
*Brownhill's Automatic Gas Meter..... 328
Building Stone..... 115
Burner, Incandescent, Lighting by..... 369
*Burners, Atmospheric, Improvement in the Construction of, by C. R. Voisey, M. D..... 110
*Bye-Products, Liquid, Dixon's Apparatus for Separating Gas from..... 116
Bye-Products of Coke Manufacture, Recovery of..... 405

C

*Calcium Carbide and Acetylene, by Francis Wyatt, Ph.D... 903
Calorimeters, Testing the Accuracy of Small Throttling..... 838
Candle Material, Melting points and Composition of, by W. E. Garrigues..... 905
Capital and Revenue Accounts of London Electric Lighting Companies..... 182
Carnegie Company, an English Contemporary on..... 150
Carriage for Common Roads, Motor-Driven..... 368
Carter. Prof. O. C. S., Drilling for Oil and Natural Gas in the Vicinity of Philadelphia..... 406
Cathode Rays..... 941
Cement, Portland..... 183
Central Heat of the Earth, to Tap the..... 50
Central Stations, Steam Engine in, by E. A. Merrill..... 119
*Chadwick, J., Experiences with Some Leaky Gasholder Tanks 390
Chemical Notes, Two Interesting, by Jos. W. Richards..... 188
Chemical Technology, Applications of, to Gas Manufacture, by G. H. Harper..... 692
Chemistry, Physical, Achievements and Aims of, by J. E. Trevor..... 224
Chester, W. B., Heating of Greenhouses and Conservatories by Coal Gas..... 868
Chew, W., Gas and Electricity Supply of Blackpool..... 184
Cleminshaw, T. S., Gaseous Fuel in the Retort House..... 148
Coal Gas Plant, Small Experimental Plant as an Aid to the Management of, by P. Young..... 727
Coal in Peru..... 914
Coal Mining in Illinois..... 223
Coal Mining in owa, C st of, by G. A. Davis..... 550
Coal Tar Application of, for Making Gas, by C. S. Ellery..... 114
Coal Versus Petroleum..... 85
Coin Meters, Notes on, by Frank Livesey..... 794
Coke Iron, Malleable Castings from..... 799
Coke Making in the South, by Richard Thomas..... 46
Coke Manufacture, Bye-Products of..... 550
Coke Manufacture, Recovery of Bye-Products in..... 405
Coke Ovens in the United States..... 117
Comments on Mr. Newbigging's Paper on "Illuminating Power and Illuminating Effect," by J. P Gill.... 218, 732, 804
Concrete Construction and its Practical Application, by E. L. Ransome..... 908
*Condenser and Drip for Gas Service Pipe, Gindele's..... 45
Conservatories and Greenhouses Heated by Coal Gas, by W. R. Chester..... 868
Construction and Equipment of a Mod rn Power Station..... 301
Copying Sculpture by Electricity..... 191
Corrosion of Iron Pipes by Electric Railway Return Currents. 263
*Crehore, Dr. A. C., Reliable Method of Recording Variable Current Curves..... 82
Crova, A., Address of, before the French Association of Gas Engineers..... 2
*Crystallization of Iron and Steel..... 509
Culvert, Electric, Gas in, by S. W. Durkin..... 911
Currents, High Potential, Protection of Buildings Against.... 13

CORRESPONDENCE—

Association Meetings and Advertising..... 650
Mr. Egner Asserts His Position..... 769
Something About the Proposed Opposition for St. Paul, Minn..... 442
Special English Correspondence, by Norton H. Humphry's..... 9, 153, 298, 478, 623, 802, 946

D

Davis, G. A., Cost of Coal Mining in Iowa..... 550
Design and Construction of Gas Works for Hot Climates, by L. T. Wright..... 836
Determination of Benzine in Illuminating Gas..... 515
Determination of Melting Points and Composition of Some Candle Material, by W. E. Garrigues..... 905
Development of the Gas Engine..... 543
Dexter, F. G., Outdoor Lighting by the Incandescent Gas Burner..... 830
*Dexter, F. G., Steam Applied as an Aid to the Revivification of Oxide *in Situ*..... 259
Diffused Reflection, Photometry of, by E. Lommel..... 661
Diffusion of Light from Dull Surfaces..... 798
Direct Current Lighting at High Pressures..... 515
Direct Reading Form of Platinum Thermometer..... 473
Distribution of Gas, by J. P. Gill..... 38, 75
*Distribution of Light from Arc Lamps, by Rankin Kennedy 874
*Dixon's Apparatus for Separating Gas from Liquid Bye-Products..... 116
*Drawing Office Methods, by S. E. McNair..... 152
Durkin, S. W., How an Electric Current Introduced Gas into an Electric Culvert..... 911
Dyeing Leather..... 122
Dyes, Action of Light on..... 330
Dynamo Currents for Operating Fire Alarm Systems, by B. S. Flanders..... 553

E

*Economical Method of Lining and Relining Generators..... 656
Economy in the Boiler Room, by J. C. McMynn..... 261
Education, Technical..... 728
Effect of Elevation on Pressure, by Fred. N. Morton..... 218
Electrical E ergy, Cost of Producing, by B. J. Arnold..... 438
Electrical Engineering, "A Living Price" in..... 190
Electrical Fads..... 837
Electricity and Gas Supply of Blackpool, by W. Chew..... 184
Electricity, Fire Risks of..... 474
Electricity, Generation of, by Windmills, by Lieut. I. N. Lewis..... 833
Electricity in Mining..... 227, 335
Electricity, Regulations for the Supply of Compared with those for the Supply of Gas, by Norton H. Humphreys... 507
Electricity Water and Gas, Power Distribution by..... 8
*Electric Lamp, Incandescent, by Wm. E. McKay..... 435
Electric Light Companies of London, Capital and Revenue Accounts of..... 182
Electric Lighting and the Competition of the Welsbach Gas Burner, by E. M. Highlands..... 546
Electric Lighting, Municipal..... 587
Electric Lighting Versus Gas, by E. M. Harris..... 74, 182, 290
Electric Machine for the Copying of Sculpture..... 191
Electric Power in Belgian Works, by D. Selby-Bigge..... 402
Electric Problem with Reference to Fires and Firemen..... 875
Electric Railway Return Currents, Corrosion of Iron Pipes by 263
Electric Shocks, Resuscitation After..... 121
Electric Wires, Fire from Contact with..... 585
Electrolysis, Prevention of..... 404
Electrolyzed Water Pipes, Analysis of..... 797
Elevation and its Effect on Gas Pressure, by J. P. Gill.... 254, 290
Ellery, C. S., Application of Coal Tar for Making Gas..... 114
Engineers' Specifications, Some Suggestions for..... 875
*Engines and Boilers in a Power Plant, Proper Connection of, by T. F. Scheffler..... 871
Engines, Governed, Hunting of..... 334
Engines, New, Precautions in First Starting..... 301
English Contemporary on the Carnegie Company..... 150
"Equilibrium, an Interesting Application of," by an "Old Contributor."..... 794
*Experiences with the Welsbach Incandescent Gas Lamp, by W. S. Rathell..... 732
Experimental Plant as an Aid to the Management of a Coal Gas Works, by P. Young..... 727
Experiments with Superheated Steam..... 659
Explosions of Gas Near Electric Mains..... 767

EDITORIALS—

American-Irish Gas Man..... 326
Annual Meeting of the Society of Gas Lighting..... 901
Another Decision by the Massachusetts Board of Gas and Electric Light Commissioners..... 901
Beginning of the End in the Brooklyn Gas War..... 362
Calcium Carbide, or "Loaf Sugar Enrichers"..... 502
City Council of St. Paul, Minn., and Col. Pugh's Opposition Project..... 434
Collapse of the Opposition at Montreal..... 506
Death of Mr. Amos. C. Barstow..... 398
Death of Mr. James W. Smith..... 798
Death of Mr. Horatio S. Young..... 614
Death of Mr. Samuel G. Stiness..... 685
Death of Mr. Thomas G. Gilbert..... 757
Decision in the Haverhill (Mass.) Gas Rate Contention.. 73
Electricity and the Auer Welsbach Burner..... 865
Ending at Washington..... 613
End of the Year..... 937
First Convention of the Superintendents of the American Gas Company..... 938
Gas War in Montreal..... 289
Herr von Oechelhauser on the Gas Industry in the United States..... 258
Humphrys & Glasgow Ready for Business..... 181
Hurried Notes from the Washington Convention..... 577
Latest from Brooklyn..... 793
London Discusses High and Low Power Gas..... 145
Memorial Action of the Guild of Gas Managers in Respect to the Late Mr. S. G. Stiness..... 865
Minneapolis (Minn.) Arbitration..... 217
Minneapolis (Minn.) Gas Rates Seem to be Settled..... 289
Minneapolis (Minn.) Gas Company Refuses to Accept the $1.30 Gas Rate..... 253
Minute Passed by the Society of Gas Lighting to the Memory of the Late Mr. S. G. Stiness..... 866
Mr. John West on Water Gas for Enriching Purposes.... 38
New York and East River Gas Company..... 145
Obituary, Mr. S. G. Stiness..... 721
Obituary, Mr. James W. Smith..... 829
Obituary, Mr. George H. Wells..... 829
Outlook for Gas Prices in New York, Brooklyn and Jersey City..... 1
Outlook for the Washington Meeting..... 434, 470, 506, 542
Palaz's Treatise on Industrial Photometry..... 902
Papers by Messrs. Egner & Evans, American Gas Light Association Meeting..... 649
"Pray's Steam Tables and Engine Constants"..... 434
Prepayment Meter..... 470
Provision of the Proposed New Constitution for the State of New York..... 542
Queer Change Wrought by Time..... 757
Sage, of Pawtucket, Receives his Friends..... 73
Secretary McKeige on the Standard Company's Relation to New York City Rate..... 37
Signs of Returning Prosperity..... 181
Situation at Montreal, Canada..... 325
Some Odd Features of the Washington Meeting..... 614
State of Trade..... 398, 649
Synopsis of the Proceedings of the Washington Meeting.. 686
Trade Outlook..... 38
Washington Meeting of the American Association..... 398
Worcester (Mass.) Hearing..... 109
Yes, the Same Old Future..... 758

F

*Facts About Gas Radiators..... 476
Fiber Tubes..... 13
Fire Alarm Systems, Dynamo Currents for Operating, by B. S. Flanders..... 553
Fireclay Gas Retorts, Manufacture of, and Advantages of having Standard Sizes, by P. Hurll..... 326
Fire from Contact with Electric Wir s..... 585

INDEX TO VOL. LXI.

Fire Risks of Electricity..... 474
Fires and Firemen, Electric Problems with Reference to..... 875
Fletcher, A. T., Inclined Retorts at the Leigh (Eng) Gas Works..... 866
Fluidity of Lubricating Oils at Various Temperatures..... 476
Foote, Allen R., Taxation..... 758
Forstall, A. E., Regenerative Benches..... 614
Forth Bridge, Painting the..... 158
French Association of Gas Engineers, Address of A. Crova ... 2
Fuel, Gaseous, by T. Travers..... 146
Fuel, Use of Peat as, in Germany..... 333
Furnace Irregularities..... 441
*Furnaces, the Vulcan Hot Air and Hot Water..... 154

C

Galloway, R. S., Incandescent Gas Lighting..... 359
Galvanizing, by M. P. Wood..... 107
Garrigues, W. E., Melting Points and Composition of Some Candle Material..... 905
Gas and Electricity Supply of Blackpool, by W. Chew..... 184
Gas Engine, History and Development of..... 543
*Gas Engines, the Andrew..... 221
Gaseous Fuel, by T. Travers..... 145
Gaseous Fuel in the Retort House, by T. S. Cleminshaw..... 144
*Gases, Hempel's Apparatus for Quick Determination of..... 761
Gas Explosions and Electric Mains..... 767
*Gasholder Tanks, Leaks in, by J. Chadwick..... 399
Gas in an Electric Culvert, by S. W. Durkin..... 911
*Gas Industry in the United States of North America, by Herr von Oechelhauser..... 255, 291
Gas Lighting Inception and Development of, by Geo. Livesey 581
*Gas Mains, Bouvier's Siphon Test Box for..... 585
Gas Manager in Argentina..... 800
Gas Manager's Experience in Japan, by Wm. Newbigging 481, 510
*Gas Manufacture, Allen's Apparatus for..... 989
Gas Manufacture, Applications of Chemical Technology to, by G. H. Harper..... 692
*Gas Meter, Brownhill's Automatic..... 328
Gas Purification and Sulphate Producing, by W. Belton 764
*Gas Radiators, Facts About..... 476
*Gas Retort Lid, Walker's..... 153
Gas Retorts, Fireclay, Manufacture of, and Advantages of having Standard Sizes, by P. Hurll..... 326
Gas Securities, Market for....14, 50, 86, 122, 158, 194, 230, 266, 302, 338, 374, 410, 446, 482, 518, 554, 590, 626, 662, 698, 734, 770, 805, 842, 878, 914, 950
*Gas used for Other purposes than Lighting, by Burdett Loomis 725
Gas Versus Electric Lighting, by E. M. Harris.....74, 182, 290
Gas, Water and Electricity, Power Distribution by..... 8
Gas Works for Hot Climates, Design and Construction of, by L. T. Wright..... 836
Generation of Electricity by Windmills, by Lieut. I. N. Lewis. 833
*Generators, Economic l Method of Lining and Relining..... 656
Gerhard, W. P., Relations Between Gas Companies and Gas Consumers..... 79
*Gifford, N. W., Light Wasted in Bad Flames..... 724
*Gilchrist, P. S., Improvements in the Manufacture of Sulphuric Acid..... 83
Gill, J. P., Comments on Mr. Newbigging's Paper on "Illuminating Power and Illuminating Effect".....218, 752, 804
Gill, J. P., Distribution of Gas..... .....38, 75
Gill, J. P., Pressure of Gas at Different Elevations.....254, 280
Gill, J. P., Some Experiences with a Gas Works in a Cold Climate..... 362
*Gindeles Condenser and Drip for Gas Service Pipes..... 45
Governed Engines, Hunting of..... 334
Greenhouses and Conservatories, Heating of, by Coal Gas, by W. R. Chester..... 868
*Guldlin's Improved Water Gas Apparatus..... 762
*Guldlin's Steam Supply and Circulating System for Water Gas Apparatus..... 262

H

Harcourt, A. Vernon, Use of a Ten-Candle Lamp in Photometry 404
Harper, G. H., Chemical Technology and Gas Manufacture.. 692
Harris, E. M., Electricity versus Gas.....74, 182, 290
*Heated Term, an Offering for, by an "Old Contributor"..... 40
Heating of Greenhouses and Conservatories by Coal Gas, by W. R. Chester..... 868
Heating Power of Smoke, by R. R. Tatlock..... 327
*Hempel's Apparatus for Quick Determination of Gases..... 761
*Herring, W. R., Oxy-Oil Gas Process at the Huddersfield Gas Works..... 41
Highlands, E. M., How Shall We Meet the Competition of the Welsbach Burner?..... 546
High Potential Currents, Protection of Buildings Against.... 13
High Pressure Direct Current Lighting..... 515
History and Development of the Gas Engine..... 543
*Hot Air and Hot Water Furnaces, the Vulcan..... 154
Hot Blast and Furnace Irregularities..... 441
How to Use Pyrometers..... 729
Humphreys, Norton H., Regulations for the Supply of Electricity Compared with those for the Supply of Gas..... 507
Humphreys, Norton H., Special English Correspondence....9, 153, 298, 478, 623, 802, 946
Hurll, P., Manufacture of Gas Retorts and Advantages of Having Standard Sizes..... 326

I

Illuminants for Lighthouses..... 370
Illuminating Power and Illuminating Effect, by Thos. Newbigging.....77, 732, 804
"Illuminating Power and Illuminating Effect," Comments on by J. P. Gill.....218, 752, 804
*Improved "Gas Cleaner" or Purifier, Lowe's..... 798
Improved Mercury Photometer for High Temperatures, by W. Niehls..... 47
*Improved Plan of Smokeless Combustion of Fuel, Amstrong's 621
*Improvements in the Manufacture of Sulphuric Acid, by P. S. Gilchrist..... 83
*Incandescent Gas Burner, Outdoor Lighting by, by F. G. Dexter..... 830
*Incandescent Electric Lamp, by W. E. McKay 435
Incandescent Gas Burners, Street Lighting with..... 10
*Incandescent Gas Lamps, Welsbach, Some Experiences with, by W. S. Rathell..... 722
Incandescent Gas Lighting, by R. S. Galloway..... 369
Inception and Development of Gas Lighting, by George Livesey..... 581
Inclined Retorts at the Leigh (Eng.) Gas Works, by A. T. Fletcher..... 863
Influence of Temperature on the Specific Heat of Aniline..... 801
Inspector of Natural Gas in Indiana, Report of, for 1893..... 365
"Interesting Application of Equilibrium," by an "Old Contributor"..... 794
*Introduction, Development and Practical Working of the Oxy-Oil Gas Process at the Huddersfield Gas Works, by W. R. Herring..... 41
*Iron and Steel, Crystallization of..... 509
Iron Pipes, Corrosion of, by Electric Railway Return Currents 263
Iron Production in the United States for 1894..... 191
Items of Interest from Various Localities....11, 48, 83, 119, 156, 192, 228, 264, 299, 336, 371, 407, 444, 479, 516, 551, 588, 624, 659, 696, 732, 767, 804, 840, 876, 911, 948

J

Japan, Gas Manager's Experience in, by William Newbigging. 481, 510

K

*Kennedy, Rankin, Distribution of Light from Arc Lamps... 874

L

*Leaky Gasholder Tanks, Experiences with, by J. Chadwick.. 399
Leather Dyeing..... 122
Lennard's Continuous Tar Still..... 944
Lewis, Lieut. I. N., Generating Electricity by Windmills..... 833
Light, Diffusion of, from Dull Surfaces..... 798
Lighthouse Illuminants..... 370
*Light Wasted in Bad Flames, by N. W. Gifford..... 724
*Lining and Relining Generators, Economical Method of..... 656
Livesey, Frank, Notes on Coin Meters..... 794
Livesey, George, Inception and Development of Gas Lighting 581
"Living Price" in Electrical Engineering..... 190
*Liquid Bye-Products, Dixon's Apparatus for Separating Gas from..... 116
Lommel, E., Photometry of Diffused Reflection..... 661
London Electric Lighting Companies, Capital and Revenue Accounts of..... 182
*Loomis, Burdett, Use of Gas for Other Purposes than Lighting..... 725
*Lowe's Improved "Gas Cleaner" or Purifier..... 793
Lubricating Oils, Fluidity of, at Various Temperatures..... 476
Lubricant, Petroleum as a..... 780

M

Machine (Electric) for the Copying of Sculpture..... 191
*McKay, Wm. E., Incandescent Electric Lamp..... 435
McMynn, J. C., Economy in the Boiler Room..... 261
*McNair, S. E., Drawing-Office Methods..... 152
Malleable Castings from Coke Iron..... 799
Magnetic Properties of Liquid Oxygen..... 945
Management of a Coal Gas Plant, Small Experimental Plant as an Aid to, by P. Young..... 727
Mains for Electric Current, Explosions of Gas near..... 767
Manufacture of Coke in the United States..... 117
Market for Gas Securities....14, 50, 86, 122, 158, 194, 230, 266, 302, 338, 374, 410, 446, 482, 518, 554, 590, 626, 662, 698, 734, 770, 806, 842, 878, 914, 950
Mathematics in Technical Schools, Teachers and Text Books in, by M. Merriman..... 512
*Mayer's Apparatus for Manufacturing Gas..... 547
Measurements to Test the Accuracy of Small Throttling Calorimeters..... 838
Melting Points and Composition of Some Candle Material, by W. E. Garrigues..... 905
Merrill, E. A., Steam Engine in Central Stations..... 119
*Meter, Brownhill's Automatic..... 328
*Meter, Milsted's, Prepayment..... 472
Meter, Prepayment, Experience with, by H. Wimhurst..... 471
Meters, Prepayment, as Sanitary Appliances..... 902
*Meters, Prepayment, by J. Nasmith..... 869
Meters, Prepayment, Notes on, by Frank Livesey..... 794
Mid-Summer Talk on a Worn Subject, by an "Old Contributor" 274
Mines, Electricity in.....227, 335
Mining Coal in Illinois..... 223
Mining Coal in Iowa, Cost of, by G. A. Davis..... 550
Mining, Waste of Coal in, by Selwyn M. Taylor..... 511
Mirror Experiments..... 86
Morton, Fred. N., Effect of Elevation on Pressure..... 218
Motor-Driven Carriages for Common Roads..... 368
Municipal Electric Lighting..... 587
Municipal Ownership of Subways..... 514

N

*Nasmith, J., Prepayment Meters..... 869
Natural Gas and Oil in the Vicinity of Philadelphia, Drilling for..... 406
Natural Gas in Indiana During 1893..... 365
Newbigging, Thos., Illuminating Power and Illuminating Effect.....77, 732, 804
Newbigging, Thomas, Stokers and Pokers..... 513
Newbigging, William, Gas Manager's Experience in Japan.481, 510
New Platinum Standard of Light..... 938
*New Recording Thermometer for Closed Spaces..... 330
Niehls, W., Improved Mercury Photometer for High Temperatures..... 47
Notes on Coin Meters, by Frank Livesey..... 794

O

*Oechelhauser, Herr von, Gas Industry in the United States of North America.....255, 291
Offering for the Heated Term, by an "Old Contributor"..... 40
Oil and Natural Gas in the Vicinity of Philadelphia, Drilling for..... 406
Oil Gas..... 544
Oils, Lubricating, Fluidity of, at Various Temperatures..... 476
"Old Contributor," "An Interesting Application of Equilibrium"..... 794
"Old Contributor," An Offering for the Heated Term..... 40
"Old Contributor," Mid-Summer Talk on a Worn Subject.... 254
"Old Contributor," Some Water Gas Stastictics..... 707
Outdoor Lighting by the Incandescent Gas Burner, by F. G. Dexter..... 830
*Oxide, Steam Applied as an Aid to Revivification of, *in Situ*, by F. G. Dexter.. 259
Oxygen, Liquid, Magnetic Properties of..... 945
*Oxy-Oil Gas Process at the Huddersfield Gas Works, by W. R. Herring..... 41

OFFICIAL NOTICES—
American Gas Light Association ...361, 397, 433, 469 505, 541
Guild of Gas Managers..... .....613, 649
Society of Gas Lighting.....371, 649, 829

P

Painting the Forth Bridge..... 158
Paint, Red Lead..... 943
Pearson, President W. H., Address of, 22d Annual Meeting American Gas Light Association..... 578
Peat, Use of, for Fuel in Germany..... 333
Peru, Coal in..... 944
Petroleum as a Lubricant..... 780
Petroleum Versus Coal..... 85
Phosphorescence..... 410
Photometer (Mercury) for High Temperatures, by W. Niehls 47
*Photometry, by Capt. W. de W. Abney.....296, 331, 363
Photometry of Diffused Reflection, by E. Lommel..... 661
Photometry, Use of a Ten-Candle Lamp in, by A. Vernon Harcourt..... 404
Physical Chemistry, Achievements and Aims of, by J. E. Trevor 224
Pipe Flanges, Standard..... 828
Pitting of Boilers..... 656
Platinum, Production and Consumption of, by B. T. Vetterlein 315
Platinum Standard of Light, New..... 938
Platinum Thermometer, Direct Reading Form of..... 473
Plumbing Inspector, Odd Experience Gained by a..... 374
Portland Cement..... 183
Power Distribution by Electricity, Water and Gas..... 8
Power, Electric, in Belgian Works, by D. Selby-Bigge..... 402
*Power Plant, Proper Connection of Boilers and Engines in, by T. F. Scheffler..... 871
Power Station, Construction and Equipment of..... 301
Practical Application of Concrete Construction, by E. L. Ransome..... 908
Precautions in First Starting New Engines..... 301
Prepayment Gas Meters as Sanitary Appliances..... 902
*Prepayment Gas Meters, by J. Nasmith..... 869
*Prepayment Meter, Milsted's..... 472
Prepayment Meter System, Experience with, by H Wimhurst 471
Pressure, Effect of Elevation on, by Fred. N. Morton..... 218
Pressure of Gas at Different Elevations, by J. P. Gill.....254, 280
Pressure of Wind..... 803
Prevention of Electrolysis..... 404
Proceedings of, Twenty-second Annual Meeting American Gas Light Association, Abstract of.....616, 650, 686
Producer Gas, Use of, for the Prevention of Smoke in Boiler Firing, by W. H. Blauvelt..... 112
Production of Electrical Energy, Cost of, by B. J. Arnold.... 433
Production of Iron in the United States in 1894..... 191
Protection of Buildings Against High Potential Currents..... 13
*Purifier, Lowe's Improved..... 798
*Pyrometer, Pneumatic, by E. A. Uehling..... 6
Pyrometers and How to Use Them..... 729

Q

*Quick Determination of Gases, Hempel's Apparatus for..... 761

R

*Radiators, Gas, Facts About..... 476
*Rathell, W. S., Some Experiences with the Welsbach Incandescent Gas Lamp..... 722

INDEX TO VOL. LXI.

Ransome, E. L., Concrete Construction..... 908
*Recording Thermometer for Closed Spaces, New..... 330
Recovery of Bye-Products in Coke Manufacture..... 405
Red Lead Paint..... 943
Regenerative Benches, by A. E. Forstall..... 614
Regulation for the Supply of Electricity Compared with those for the Supply of Gas, by Norton H. Humphreys..... 507
Relations between Gas Companies and Gas Consumers, by W. P. Gerhard, C. E..... 79
Resuscitation After Electric Shocks..... 121
Retort House, Gaseous Fuel in, by T. S. Cleminshaw..... 148
*Retort Lid, Walker's..... 153
Retorts, Inclined, at the Leigh (Eng.) Gas Works, by A. T. Fletcher..... 866
*Revivification of Oxide *in situ*, Steam Applied as an Aid to, by F. G. Dexter..... 259
Richards, Jos. W., Two Interesting Chemical Notes..... 188

S

Sadler, Col., Inaugural Address of, North of England Gas Manager's Association..... 656
Sanitary Appliances, Prepayment Gas Meters as..... 902
*Scheffler, T. F., Proper Connection of Boilers and Engines in a Power Plant..... 871
Selby-Bigge, D., Electric Power in Belgian Works..... 402
*Service Pipes, Gindele's Condenser and Drip for..... 45
Shocks by Electricity, Resuscitation from..... 121
*Sicard, W. P., Smoke-Preventing Appliances.....189, 219
*Syphon Test Box for Gas Mains, Bouvier's..... 585
Smoke, Heating Power of, by R. R. Tatlock..... 327
*Smokeless Boiler Setting, the Bates..... 221
*Smokeless Combustion of Fuel, Armstrong's Improved Plan for..... 621
*Smoke-Preventing Appliances, by W. P. Sicard.....189, 219
Some Experiences with a Gas Works in a Cold Climate, by J. P. Gill..... 362
Specific Heat of Aniline, Influence of Temperature on..... 801
Standard of Light, New Platinum..... 938
Standard Pipe Flanges..... 838
Steam Engine Cylinders, Most Economical Temperature for.. 477
Steam Engine in Arc Light Stations..... 117
Steam Engine in Central Stations, by E. A. Merrill..... 119
Steam, Superheated, Experiments with..... 659
*Steam Supply and Circulating System for Water Gas Apparatus, Guldlin's..... 262
*Steel and Iron, Crystallization of..... 509
Stokers and Pokers, by Thomas Newbigging..... 513
Storage Battery from the Standpoint of the Purchaser, by Townsend Wolcott..... 546
Street Lighting with Incandescent Gas Burners..... 10
Subways, Municipal Ownership of..... 514
Suggestions for Engineers' Specifications..... 875
Sulphate Producing and Gas Purification, by W. Belton..... 764
*Sulphuric Acid Improvements in the Manufacture of, by P. S. Gilchrist..... 83

T

*Tanks for Gasholders, Leaks in, by J. Chadwick..... 399
Tapping the Central Heat of the Earth..... 50
Tar Still, Lennard's Continuous..... 944
Tatlock, R. R., Heating Power of Smoke..... 327
Taxation, by Allen R. Foote..... 758
Taylor, Selwyn M., Waste of Coal in Mining..... 511
Technical Education..... 728
Technical Schools, Teachers and Text Books in Mathematics in, by M. Merriman..... 512
Temperature for Steam Engine Cylinders, Most Economical.. 477
*Thermometer for Closed Spaces, New Recording..... 330
Thermometer, Platinum, Direct-Reading Form of..... 473
Thomas, Richard, Coke Making in the South..... 46
Throttling Calorimeters, Testing the Accuracy of..... 838
Travers, T., Gaseous Fuel..... 146
Trevor, J. E., Achievements and Aims of Physical Chemistry. 294
Tubes, Fiber..... 13
Two Interesting Chemical Notes, by Jos. W. Richards..... 188

U

*Uehling, E. A., Pneumatic Pyrometer..... 6
Unaccounted-for Gas, by L. T. Wright..... 729
*Use of Gas for Other Purposes than Lighting, by Burdett Loomis..... 725
Use of Peat as Fuel in Germany..... 333
Use of Pyrometers..... 729

V

*Variable Current Curves, Reliable Method of Recording, by Dr. A. C. Crehore..... 82
Vetterlein, B. T., Production and Consumption of Platinum.. 335
*Voisey, C. R., M. D., Improvement in the Construction of Atmospheric Burners..... 110
*Vulcan Hot Air and Hot Water Furnaces..... 154

W

*Walker's Gas Retort Lid..... 153
*Waste of Light in Bad Flames, by N. W. Gifford..... 724
Water, Gas and Electricity, Power Distribution by..... 8
*Water Gas Apparatus, Guldlin's Improved..... 762
*Water Gas Apparatus, Guldlin's Steam Supply and Circulating System for..... 262
Water Gas Statistics, by an "Old Contributor"..... 507
Water Pipes, Electrolyzed, Analysis of..... 797
*Water Tube Boilers, Circulation in..... 835
Welsbach Burner, How Shall We Meet the Competition of, by E. M. Highlands..... 546
*Welsbach Incandescent Gas Lamp, Some Experiences with, by W. S. Rathell..... 722
Wimhurst, H., Experience with the Prepayment Meter..... 471
Windmills, Generating Electricity by, by Lieut. I. N. Lewis.. 833
Wind Pressure..... 808
Wires, Electric, Fire from Contact with..... 585
Wolcott, Townsend, Storage Battery from the Standpoint of the Purchaser..... 546
Wood, M. P., Galvanizing..... 907
Wright, L. T., Design and Construction of Gas Works for Hot Climates..... 836
Wright, L. T., Unaccounted-for Gas..... 729
*Wyatt, Francis, Ph.D., Calcium Carbide and Acetylene..... 903

Y

Young, Peter, Small Experimental Plant as an Aid to the Management of a Coal Gas Works..... 727

SPECIAL INDEX.

ABSTRACT OF PROCEEDINGS OF TWENTY-SECOND ANNUAL MEETING OF THE AMERICAN GAS LIGHT ASSOCIATION

Applications for Membership..... 616
Appointment of Special Committees..... 618
Constitution and By-Laws Governing the Proposed Federation..... 610
Election of Officers..... 618
Federation, Discussion on..... 690
President's Address..... 578
Report of Council..... 617
Votes of Thanks..... 692

PAPERS READ:

Applications of Chemical Technology to Gas Manufacture, by G. H. Harper..... 692
*Light Wasted in Bad Flames, by N. W. Gifford..... 724
*Observations on Sundry Methods of Making Water Gas from Bituminous Coal, by Frederic Egner..... 650
*One of the First Meter Makers in the United States, by H. C. Slaney..... 686
Patching Holders While in Use, by J. H. Findlay..... 689
Petroleum: Its Products and Their Relation to the Gas Industry, by C. H. Evans..... 654
Public Ownership of Gas Properties, by Walton Clark.... 618
Some Experiences with the Welsbach Incandescent Gas Lamp, by W. S. Rathell..... 722
Small Experimental Plant as an Aid to the Management of a Coal Gas Works, by Peter Young..... 727
Taxation, by A. R. Foote..... 758
Use of Gas for Other Purposes than Lighting, by Burdett Loomis..... 725

QUESTION-BOX:

1. "Which is the better pipe for use in services—steel or iron—and why?"..... 689
2. "Which rusts more rapidly in service use—steel or iron? What kind of yarn is best suited for lead joints—the plain or tarred yarn—and why?"..... 689
3. "What kind of yarn is best suited for cement joints—the plain or tarred yarn—and why?"..... 689
4. "The Proceedings of the Association being copyrighted, what effect does that have upon papers published therein and read at the meetings?"..... 689
5. "Why are holders built with horizontal side seams made to lap down instead of up on the outside?"..... 689
6. "What should be allowed as a general average for the shrinkage of Lowe water gas in its change from the relief holder through the exhauster, purifiers and meter to the distributing holder, aside from that due to difference in temperature?"..... 689
7. "Has anyone used the slide rule principle in figuring the flow of gas through mains? If so, with what satisfaction?"..... 690